WHAT IS CLAIMED IS:

1. An isolated PMPE or PMPI polypeptide of a *Chlamydia spp.*, having a molecular weight between 90 and 115 kDa as determined by SDS polyacrylamide gel electrophoresis.

2. The PMPE or PMPI polypeptide of claim 1, wherein the *Chlamydia spp.* is *Chlamydia trachomatis, Chlamydia pneumonia, Chlamydia psittaci* or *Chlamydia pecorum.*

3. The PMPE or PMPI polypeptide of claim 2, wherein the *Chlamydia spp.* is *C. trachomatis.*

4. The PMPE or PMPI polypeptide of claim 1, which comprises an amino acid sequence of SEQ ID NO.:2 or 4, a sequence substantially homologous thereto, or an at least 8 amino acid fragment thereof.

5. The PMPE or PMPI polypeptide of claim 1, or a peptide fragment thereof, which specifically binds an antibody that specifically binds to a protein having the amino acid sequence of SEQ ID NO.:2 or 4.

6. A peptide fragment of the PMPE or PMPI polypeptide of claim 1, which fragment is at least 8 amino acids in length.

7. The peptide fragment of claim 6 wherein said peptide fragment comprises the amino acid sequence of one of SEQ ID NO.:5-34.

8. An isolated fusion polypeptide comprising at least two peptides, said at least two peptides each consisting of an amino acid sequence of one of SEQ ID NO.:5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, or 34, with the proviso that the peptides are arranged in a configuration that is different from the configuration of a naturally occurring PMPE or PMPI polypeptide.

9. The isolated fusion polypeptide of claim 8 wherein the fusion polypeptide comprises peptides consisting of the amino acid sequences of SEQ ID NO.:5, 6, 7, 8, 9, 10 and 11.

10. The isolated fusion polypeptide of claim 8 wherein the fusion polypeptide comprises peptides consisting of the amino acid sequences of SEQ ID NO.:23, 24, 25, 26, 27, 28, and 29.

11. An antibody or an antigen-binding fragment thereof that specifically binds the PMPE or PMPI polypeptide of claim 1.

12. An antibody or an antigen-binding fragment thereof that specifically binds the peptide fragment of claim 6.

13. An antibody or an antigen-binding fragment thereof that specifically binds a peptide fragment consisting of an amino acid sequence of SEQ ID NO.:5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17,18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, or 34.

14. The antibody of claim 11, 12 or 13 which is a cytotoxic, cytostatic, or neutralizing antibody.

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15. A vaccine comprising the PMPE or PMPI polypeptide of claim 1 and a pharmaceutically acceptable carrier or diluent.

16. The vaccine of claim 15 further comprising one or more adjuvants or immunostimulatory compounds.

17. The vaccine of claim 16 wherein the adjuvants or immunostimulatory compounds are one or more of alum, MLT, QS21, MF59, CpG DNA, PML, calcium phosphate and PLG.

18. The vaccine of claim 16 comprising one adjuvant or immunostimulatory compound.

19. The vaccine of claim 16 comprising two different adjuvants or immunostimulatory compounds.

20. A vaccine comprising the polypeptide fragment of claim 6 and a pharmaceutically acceptable carrier or diluent.

21. The vaccine of claim 20 further comprising one or more adjuvants or immunostimulatory compounds.

22. The vaccine of claim 21 wherein the one or more adjuvants or immunostimulatory compounds are selected from the group consisting of alum, MLT, QS21, MF59, CpG DNA, PML, calcium phosphate and PLG.

23. The vaccine of claim 21 comprising one adjuvant or immunostimulatory compound.

24. The vaccine of claim 21 comprising two different adjuvants or immunostimulatory compounds.

25. A vaccine comprising the isolated fusion polypeptide of claim 8 and a pharmaceutically acceptable carrier or diluent.

26. The vaccine of claim 25 further comprising one or more adjuvants or immunostimulatory compounds.

27. The vaccine of claim 26 wherein the one or more adjuvants or immunostimulatory compounds are selected from the group consisting of alum, MLT, QS21, MF59, CpG DNA, PML, calcium phosphate and PLG.

28. The vaccine of claim 26 comprising one adjuvant or immunostimulatory compound.

29. The vaccine of claim 26 comprising two different adjuvants or immunostimulatory compounds.

30. A vaccine comprising the antibody of claim 11 and a pharmaceutically acceptable carrier or diluent.

31. The vaccine of any one of claims 15, 20 or 25 additionally comprising one or more immunogens selected from the group consisting of a lipid, lipoprotein, phospholipid, lipooligosaccharide, protein, attenuated organism and inactivated whole cell.

32. The vaccine of claim 31 wherein the one or more immunogens are a DPT vaccine, a HMWP of *C. trachomatis*, a MOMP of *C. trachomatis*, or an entire organism, or subunit therefrom, of *Chlamydia*, *Neisseria gonorrhea*, HIV, *Haemophilus influenzae*, *Moraxella catarrhalis*, *Human papilloma virus*, *Herpes simples virus*, *Haemophilus ducreyi*, *Treponema pallidium*, *Candida albicans* or *Streptococcus pneumoniae*.

33. An isolated nucleic acid molecule comprising a nucleotide sequence encoding a PMPE or PMPI polypeptide, or an at least 8 amino acid fragment thereof, of a *Chlamydia spp.*, said PMPE or PMPI polypeptide having a molecular weight between 90 and 115 kDa as determined by SDS polyacrylamide gel electrophoresis.

34. An isolated nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO.:1 or 3, an at least 15 nucleotide fragment thereof, or the complement thereof.

35. A pharmaceutical composition comprising the isolated nucleic acid molecule of claim 33.

36. A vaccine comprising the isolated nucleic acid molecule of claim 33.

37. A vaccine comprising an isolated nucleic acid comprising a nucleotide sequence encoding the PMPE or PMPI polypeptide of claim 1, or an at least 15 nucleotide fragment thereof, and further comprising one or more adjuvants or immunostimulatory compounds.

38. The vaccine of claim 37 wherein the one or more adjuvants or immunostimulatory compounds are alum, MLT, QS21, MF59, CpG DNA, PML, calcium phosphate or PLG.

39. The vaccine of claim 37 comprising one adjuvant or immunostimulatory compound.

40. The vaccine of claim 37 comprising two different adjuvants or immunostimulatory compounds.

41. A vaccine comprising one or more of an isolated PMPE or PMPI polypeptide of a *Chlamydia spp.*, having a molecular weight between 90 and 115 kDa as determined in SDS polyacrylamide gel electrophoresis; or an isolated nucleic acid comprising a nucleotide sequence encoding an PMPE or PMPI polypeptide of a *Chlamydia spp.*, said PMPE or PMPI polypeptide having a molecular weight between 90 and 115 kDa as determined by SDS polyacrylamide gel electrophoresis; said vaccine further comprising one or more adjuvants or immunostimulatory compounds selected from the group consisting of alum, MLT, QS21, MF59, CpG DNA, PML, calcium phosphate and PLG.

42. A method of producing an immune response in an animal comprising administering to the animal an immunogenic amount of the PMPE or PMPI polypeptide of claim 1.

43. A method of producing an immune response in an animal comprising administering to the animal an immunogenic amount of the peptide fragment of claim 6.

44. A method of producing an immune response in an animal comprising administering to the animal an immunogenic amount of the isolated fusion polypeptide of claim 8.

45. A method of producing an immune response in an animal comprising administering to the animal an immunogenic amount of the nucleic acid molecule of claims 33 or 34.

46. A method of producing an immune response in an animal comprising administering to the animal an immunogenic amount of the vaccine of claim 41.

47. A method of producing an immune response in an animal comprising administering to the animal an immunogenic amount of one or more of the vaccines of claims 15, 20, 25, 30, 36, or 37, wherein said vaccines are administered simultaneously or sequentially.

48. Plasmid M15 pREP (pQE-pmpE-Ct-Uni)#37 obtainable from *E. coli*, as deposited with the ATCC and assigned accession number PTA-2462.

49. Plasmid TOP10 (pBAD-pmpI-Ct-Uni)#7 obtainable from *E. coli*, as deposited with the ATCC and assigned accession number PTA-2461.

50. A recombinant expression vector adapted for transformation of a host cell comprising the nucleic acid molecule of claim 33 or 34.

51. The recombinant expression vector of claim 50 further comprising an expression means operatively coupled to the nucleic acid molecule for expression by the host of the PMPE or PMPI protein, or a fragment thereof.

52. The expression vector of claim 51, wherein the expression means includes a nucleotide sequence encoding an amino acid sequence that can be used for the purification of the PMPE or PMPI protein.

53. The expression vector of claim 51 wherein the expression means further includes a nucleotide sequence encoding an amino acid sequence that directs secretion from the host of the PMPE or PMPI polypeptide.

54. A transformed host cell containing the expression vector of claim 50.

55. A transformed host cell containing the plasmid of claim 48 or 49.

56. A host cell containing the nucleic acid molecule of claim 33 or 34 operatively linked to a heterologous promoter.

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57. An isolated recombinant PMPE or PMPI polypeptide produced by a method comprising culturing the transformed host cell of claim 54 under conditions suitable for expression of said PMPE or PMPI polypeptide and recovering said PMPE or PMPI polypeptide.

58. An isolated recombinant PMPE or PMPI polypeptide produced by a method comprising culturing the transformed host of claim 55 under conditions suitable for expression of said PMPE or PMPI polypeptide and recovering said PMPE or PMPI polypeptide.

59. An isolated PMPE or PMPI polypeptide produced by a method comprising culturing the host cell of claim 56 under conditions suitable for the expression of a PMPE or PMPI polypeptide and recovering said PMPE or PMPI polypeptide.

60. A method of preventing, treating or ameliorating a disorder or disease associated with infection of an animal with *Chlamydia* by administering to a subject in need of such prevention, treatment or amelioration an effective amount of the polypeptide of claim 1.

61. A method of preventing, treating or ameliorating a disorder or disease associated with infection of an animal with *Chlamydia* by administering to a subject in need of such prevention, treatment or amelioration an effective amount of the polypeptide fragment of claim 6.

62. A method of preventing, treating or ameliorating a disorder or disease associated with infection of an animal with *Chlamydia* by administering to a subject in need of such prevention, treatment or amelioration an effective amount of the isolated fusion polypeptide of claim 8.

63. A method of preventing, treating or ameliorating a disorder or disease associated with infection of an animal with *Chlamydia* by administering to a subject in need of such prevention, treatment or amelioration an effective amount of the vaccine of claim 30.

64. A method of preventing, treating or ameliorating a disorder or disease associated with infection of an animal with *Chlamydia* by administering to a subject in need of such prevention, treatment or amelioration an effective amount of the vaccine of claim 31.

65. A method of preventing, treating or ameliorating a disorder or disease associated with infection of an animal with *Chlamydia* by administering to a subject in need of such prevention, treatment or amelioration an effective amount of the vaccine of claim 32.

66. A method of preventing, treating or ameliorating a disorder or disease associated with infection of an animal with *Chlamydia* by administering to a subject in need of such prevention, treatment or amelioration an effective amount of the vaccine of claim 37.

67. A method of preventing, treating or ameliorating a disorder or disease associated with infection of an animal with *Chlamydia* by administering to a subject in need of such prevention, treatment or amelioration an effective amount of the vaccine of claim 41.

68. A method of preventing, treating or ameliorating a disorder or disease associated with infection of an animal with *Chlamydia* by administering to a subject in need of such prevention, treatment or amelioration an effective amount more than one of the vaccines of claims 15, 20, 25, 30, 31, 35, 37 or 41, each optionally comprising one or more immunogens selected from the group consisting of a lipid, lipoprotein, phospholipid, lipooligosaccharide, protein, attenuated organism and inactivated whole cell, wherein said vaccines are administered simultaneously or sequentially

69. An antagonist which inhibits the activity of the polypeptide of claim 1.

70. An antagonist which inhibits the expression of the nucleic acid of claim 33.

71. A method for identifying compounds that interact with the polypeptide of claim 1, said method comprising contacting a composition comprising the polypeptide with the compound to be screened under conditions that permit interaction between the compound and the polypeptide; and detecting the interaction of the compound with the polypeptide.

72. A method for identifying compounds which interact with the nucleic acid molecule of claim 33, said method comprising contacting a composition comprising the nucleic acid molecule with the compound to be screened under conditions that permit interaction between the compound and the nucleic acid molecule; and detecting the interaction of the nucleic acid with the compound.